



THR 480 -Lighting Visualization Software: Digital Exploration

Carson B. Cook

Advisor: Carolyn “CC” Conn



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Carson Cook is currently attending Stephen F. Austin State University majoring in Technical Theatre & Design and minoring in Interior Design. His theatrical credits at SFA include designing lights, sound, and scenery for theatre and opera which is backed by his TOMY Award in May of 2019 for Excellence in Theatre.

As a member of the Beta Phi Cast of Alpha Psi Omega, The National Theatre Honor Society, Carson also dedicates his time to supporting the theatrical community and providing help to those in need. Upon graduating in the Fall of 2021, Carson plans to pursue a Masters Program in Lighting Design and continue his education in arts and creativity. Carson's full c.v. and samples of his work can be seen at his website, CcookLighting.wixsite.com/portfolio

Project Overview

This project provided opportunities for students in the THR 480 Advanced Lighting Technology Class to develop experience in programming and designing complex lighting rigs on both the ETC EOS and GrandMA lighting consoles. The project consisted of designing on both consoles a lighting rig with over 60 advanced lighting fixtures, programming to music, and syncing the music to the cues via time code. Throughout the project in the Advanced Lighting Technology class, Carson gained knowledge in patching, effect creation, 3D rendering, time coding, time management, and pixel mapping.

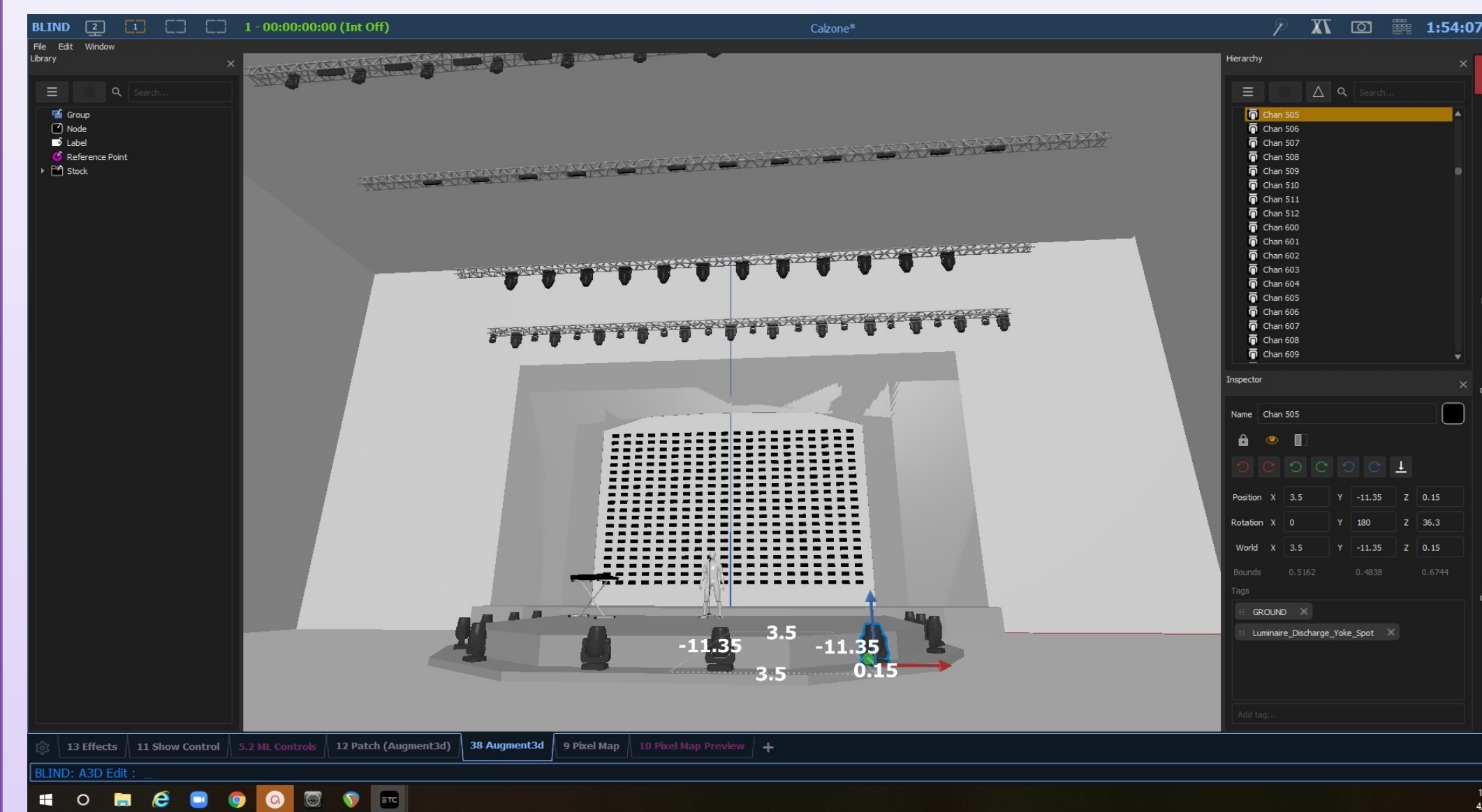
Objectives

- Comprehend and utilize basic command line phrases on both the ETC EOS and GrandMA lighting consoles.
- Achieve Proficiency in building, editing, and patching data in both Augmented3D and MA3D.
- Design two quality light designs to two contrasting pieces of music.
- Learn and work with time code and midi control to sync lighting cues to the contrasting music.
- Develop and organize a Wattage Calculation Sheet for both lighting rigs.

Research Questions

The following is a list of research questions developed by Carson Cook for his project.

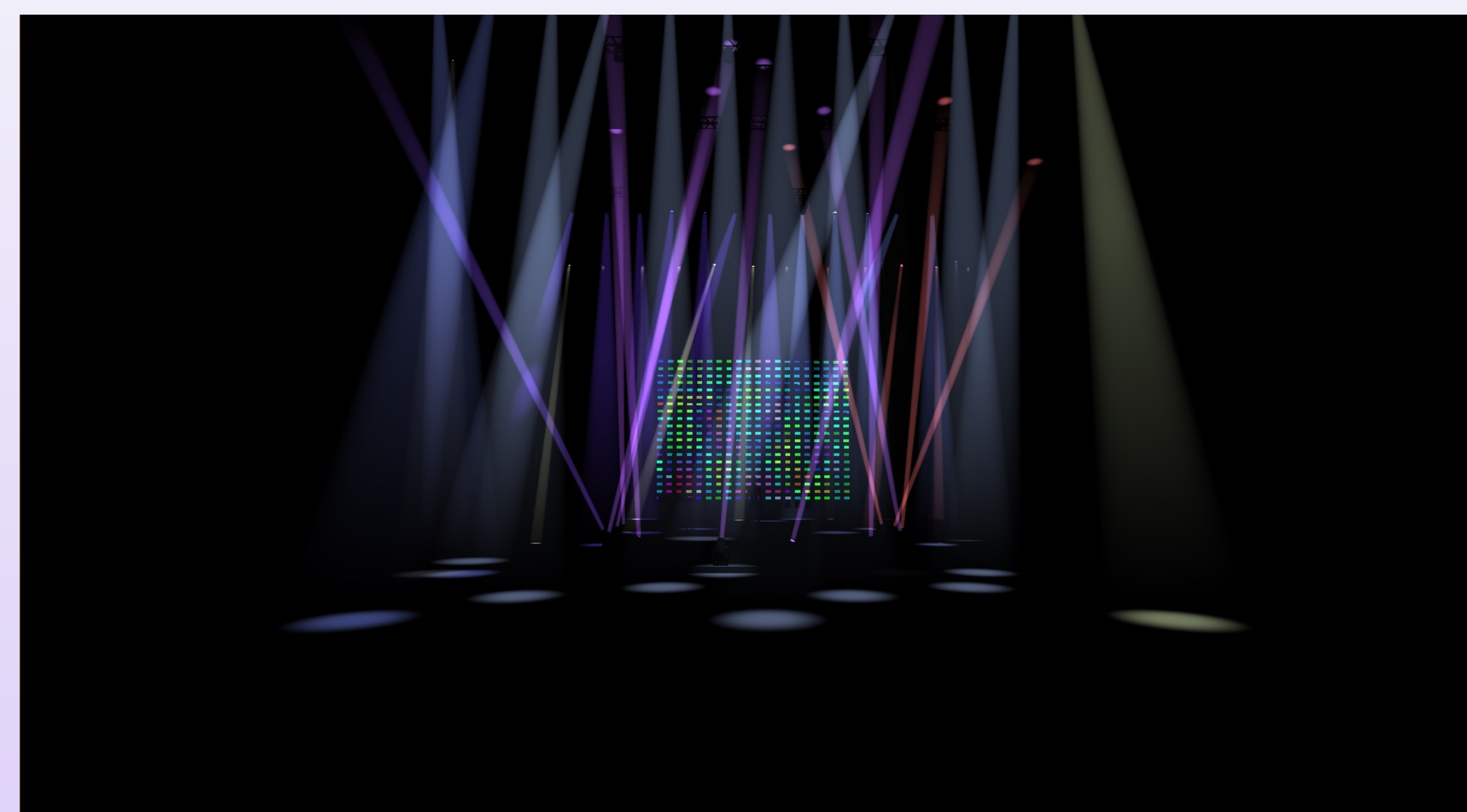
- 1) In what ways can I, using the online training provided to me, increase my efficiency in programming on lighting consoles?
- 2) How can using lighting visualization software benefit a lighting designer in the design or programming process?
- 3) With an increased interest in technological discovery in the theatrical world, how can lighting visualization software be utilized in real productions and concerts?
- 4) What is the importance of Wattage Calculations and how can it affect a productions budget?
- 5) What are benefits of using time code with your design?



ETC EOS Augmented 3D – Building and editing a lighting rig in the lighting visualization software.



GrandMA/MA3D– Using command line phrases and syntax to program effects and cues into the show. Recorded 48 cues/lighting looks.



ETC EOS Augmented 3D – Using command line phrases and syntax to program effects and cues into the show. Recorded 149 cues/lighting looks.



GrandMA3/MA3D– Building and editing a lighting rig in the lighting visualization software.

Final Project Wattage Calculations					
GrandMA2 - Rocket Man					
Instrument Type	Manufacturer	Quantity	Volts per Instrument	Watts per Instrument	Total Watts
Mac Viper Profile	Martin	24	240V	4800W	115,200W
Mac Aura	Martin	24	100V	2000W	48,000W
Aleda B-EYE K10	Clay Paky	24	240V	4800W	115,200W
Super Sharpy	Clay Paky	24	230V	4600W	110,400W
11 Mega Strobe	ADJ	24	120V	2400W	57,600W
VL4000 Spot	Vari-Lite	12	240V	4800W	57,600W
Atomic 3000	Martin	12	120V	2400W	28,800W
Total Watts:					532,800W
ETC - Clockwork					
Instrument Type	Manufacturer	Quantity	Volts per Instrument	Watts per Instrument	Total Watts
Mac Viper Profile	Martin	36	240V	4800W	172,800W
Mac Aura	Martin	24	100V	2000W	48,000W
Stage Bar 54 L	Martin	12	240V	4800W	57,600W
Super Sharpy	Clay Paky	24	230V	4600W	110,400W
Atomic 3000	Martin	24	120V	2400W	57,600W
PixelArc R 16B R3	Pixel Range	400	24V	480W	192,000W
Total Watts:					638,400W

Wattage Calculations for both ETC and GrandMA Lighting Rigs

Methodology

- Complete and study the ETC EOS Online Training Courses (Basics, Intermediate, and Advanced)
- Complete and study the GrandMA3 Online Training Courses (Basics, Advanced, Effects, GUI, and Organization)
- Prepare and record 2 lighting presentations (1 on ETC and 1 on GrandMA) with contrasting music choices.

Results

1. Going through the online training programs on both ETC and GrandMA lighting consoles allowed myself to familiarize the basic and advanced keystrokes/command syntax. Having this knowledge empowered me to work quicker and smarter while programming. The two consoles both have a computer version that simplifies the hundreds of buttons to just your keyboard. Having familiarized myself with the keyboard shortcuts, with the use of visualization software I can now program a show efficiently anywhere, at any time, with the ability to see exactly what I am programming on a 3D version of the stage.
2. When it comes to light design, lighting visualization offers two major advantages. The first being that you can pre-test different lighting angles with different lighting instruments and compare the differences all from one computer. This can save a designer a lot of time in the pre-planning phase. The next and more obvious advantage is that you can pre-program almost the entirety of a show before even entering the space. This would cut down on a lot of time and labor and be very cost-effective.
3. Having a concrete grasp of the visualization software can save a lot of time. This in turn, will save theatre's money from the smaller labor costs.
4. Similar to having a grasp on visualization software, knowing exactly how to calculate your wattage output can save you a lot of additional planning and funds. Having wattage calculations informs the designer of the exact amount and right type of generators and cable to place on their shop order. Without the calculations, a designer might under or overestimate and end up costing a theatre either more time waiting on shipping, or more money on unneeded supplies.
5. In live theatre, time code will not always be the most beneficial. This is because theatre relies on a stage manager to call the execution of cues based off an actors live actions on stage. However, time code can be useful to sync your light cues with moving scenery or a musical number.

How the Results Effect My Future Endeavors

Overall, the process of training on different consoles, building rigs in 3D rendering softwares, programming to contrasting music, and developing wattage calculations has improved my skillsets significantly. Throughout the process I have gained proficiency in patching, effect creation, 3D rendering, time coding, time management, and pixel mapping.

This project will not only be a great addition of strengths to my resume but will also continue to provide valuable time-saving insight as a lighting designer and programmer. Having this insight directly out of college will be extremely beneficial to my job search and will create more opportunities the more time and capital I save for the future theatrical companies that employ me.

ACKNOWLEDGMENTS

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GrandMA Online Software Training
ETC EOS Online Software Training